Freshwater Wetland Monitoring and Assessment in RI
Wetland Partners Meeting Notes
July 6, 2006

In attendance:
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Purpose of meeting
The purpose of this meeting was to update partners on wetland monitoring activities and solicit ideas and feedback on current projects.

Introduction/Background
After incorporating comments from partners, the plan for freshwater wetland monitoring and assessment is essentially complete. The plan has been reviewed internally and will be sent to the RIEMC for review. The plan will be posted as soon as possible on a new web page at DEM dedicated to wetland monitoring.

With receipt of an EPA wetland pilot demonstration grant, work on 3 projects is being conducted: 1) wetland profiles by watershed, 2) characterization of wetlands in proximity to water withdrawals, and 3) demonstration of rapid assessment methods for wetland monitoring. Each of these projects was described in brief during the meeting and is summarized below. Questions and discussion followed.

Review of ST and LT Plan Objectives:
The goal of wetland monitoring and assessment in Rhode Island is to improve protection and management of wetlands by understanding the cumulative impacts of human activities on the condition or health of wetlands. A three-tiered approach to monitoring, advocated by EPA, will be used to address the following long and short-term objectives, identified by DEM and partners:

Long-term objectives

- Develop a database of information necessary to evaluate trends in wetland condition.
- Identify causes and sources of wetland degradation including cumulative impacts to wetlands.
- Identify program and policy changes needed to improve overall wetland condition statewide.
- Evaluate the effectiveness of wetland management and protection programs with respect to wetland condition.

Short-term objectives

- Prioritize wetlands (and adjacent upland habitat) for protection through open space acquisition and other land protection mechanisms.
- Develop and implement methods for monitoring impacts to wetlands due to water withdrawals.
- Monitor and assess impacts to wetlands due to loss and degradation of adjacent upland habitats (buffer zones).
- Monitor location and extent to which invasive species are present and affecting wetland condition.

Year 1 Projects Underway:

1. Wetland Profiles by Watershed

This is a landscape scale project using existing GIS data to create profiles of wetlands by watershed. This information will be made available to watershed groups, conservation commissions, towns, non-profits and others interested in better understanding wetlands in their watershed. Profiles are intended to be "living" documents that record baseline information about wetland coverage, land use, % impervious surface, rare and endangered species, and other data, as well as research projects, restoration activities, and activities in the watershed that impact wetlands. Information will be added to profiles as it is gathered.

We are seeking suggestions from partners for data to be added to profiles. During the meeting partners suggested adding information about linkages of wetlands to the surrounding terrestrial environment, water withdrawals in a watershed, conservation farms, and inventory of wetlands undergoing restoration. In addition to providing raw data, partners suggest discussing the impacts to wetlands from land use, % impervious surface, and other activities in a watershed to provide context and significance of what's happening in the watershed as it relates to wetlands.

We will continue to ask for ideas and data to add to profiles, so please share your thoughts with us!

2. Water Withdrawals Near Wetlands

This is also a landscape scale project looking at the proximity of water withdrawals to wetlands. To narrow our focus, we decided to look at community wells in stratified drift that pump greater than 100 gpm. Existing GIS data, including community well locations, wetlands, soil type, and surrounding land use are displayed to better understand where the wells are in proximity to wetlands, and how much and what classes of our wetlands are potentially impacted by these withdrawals. This exercise gives us context for the problem and helps tell us where to go from here. We are taking steps to figure out how to understand impacts to wetlands.

Partners reminded us of the USGS study in the Wood-Pawcatuck watershed modeling water withdrawals on vernal pools and streams. They also reminded us of existing USGS reports on flow rates in the Hunt and Annaquatucket Rivers.

Note about using existing GIS data for landscape-scale projects
The inaccuracies in RIGIS were mentioned again during the meeting. Although the RIGIS wetlands dataset is out of date and contains significant positional errors, the decision was made during the plan development to use existing data to begin addressing wetland monitoring plan objectives. While we recognize and acknowledge the limitations, the level of detail and accuracy of existing data are appropriate to the scope of our landscape scale projects at this time. We look forward to being able to develop more detailed and accurate wetland monitoring assessment tools at the landscape level with receipt of updated RIGIS data.

3. Demonstration of Rapid Assessment Methods

We have chosen two existing wetland rapid assessment methods, developed in Ohio and Delaware, to test in Rhode Island. In this first year, we plan to select a small number of sample sites to demonstrate the methods in RI. These methods were described in brief to partners at the meeting and field sheets were passed out for review.

In general, rapid methods to assess wetland condition are made up of indicators based on the universal features of wetlands: hydrology, the presence of hydric soils, and the presence of hydrophytic vegetation and other wetland biota. The methods assume that wetlands respond predictably to stressors from human activities and include, among other factors, a list of the stressors

themselves (e.g. ditching, trash dumping, tree cutting), or a description of the response of a wetland to stressors (e.g. percent cover of invasive species). Wetlands can then be placed somewhere along a gradient of disturbance based on their assessed condition.

The Ohio Rapid Assessment Method (ORAM) contains a narrative section and a quantitative (or semi-quantitative) section that assesses 6 metrics: 1. Wetland size, 2. Upland buffers and surrounding land use, 3. Hydrology, 4. Habitat alteration and development, 5. Special wetland communities, and 6. Vegetation interspersion and microtopography.

The Delaware Rapid Assessment Procedure (DERAP) is a checklist of stressors affecting the habitat/plant community (13 stressors), hydrology (9 stressors), and buffer (12 stressors) of a wetland.

For both methods, there are several steps we're working on prior to field implementation:

1. Site selection

2. Access to sites

3. Definition of the assessment area

4. Classification of wetlands – Currently RI uses the Cowardin system to classify wetlands. We'll continue to use this, however, OH and DE also classify their wetlands using the HGM system and have found that to be helpful in sorting out their data and comparing wetlands of a similar class. Where possible, we will try to describe our wetlands by broad HGM class in the field (in addition to Cowardin), recognizing that this could be difficult at some sites.

5. Reporting results – One of the biggest challenges all states are facing is how best to report results of a conditional wetland assessment. Existing rapid assessment methods rely on a point system to place a wetland into condition categories, which are described narratively. We are sensitive to the concerns about "ranking" wetlands and about information about wetland condition being misused. The purpose of assessing wetland condition is to become aware of the ecological health of our wetlands so we can better protect, manage, and restore wetlands. Wetlands will not be "ranked" by these methods, but rather condition of the wetland resource will be described somehow.

Additional topics of discussion about RAMs

During the meeting, partners discussed the need for RI to validate RAM results with more detailed studies such as relating the number of breeding amphibians with predicted wetland condition, or correlating wetland condition with Odonate data or other "level 3" biological data, if possible.

To help apply the RAM data to objectives, the suggestion was made to indicate which RAM metrics apply to which objectives, and to determine which stressors we can do something about once they are identified.

As we work to modify existing RAMs to RI conditions, the suggestion was made to collect continuous data and then break it down into groups or categories as they do in OH. For example, we can record actual wetland size and buffer widths, rather than putting them into the broader categories suggested by the ORAM method.

Questions for partners

During the meeting, we posed the following questions to partners:

- Are there special wetland communities in RI to replace those listed in ORAM that do not apply to RI?

- Should we keep the wetland size and buffer width categories as they're broken down in ORAM? (Note: This question was addressed above).
- Is the concept of a stressor checklist useful or helpful for RI?
- Are there stressors in RI that are not on Delaware's list? And are there stressors on their list that are not applicable in RI?

As we think of additional questions, I will send them out to those of you who are interested.

Next Steps
The next steps are to get out in the field to test these RAMs!

Thank you!
Thank you to all who could attend the meeting, and to those who remain interested in this effort. It was a very productive meeting, and your comments and feedback are greatly appreciated! We are just beginning this work and have much to learn, but we're excited to make some progress and see what we find. We look forward to your continued participation along the way.